

## TWO QUESTIONS ABOUT LOCAL COHOMOLOGY

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We will discuss two questions about local cohomology modules. The first, raised by Eisenbud, Mustață, and Stillman, inquires about the injectivity of natural maps from Ext modules to local cohomology modules. We have some positive answers, extending earlier results of Mustață. The second is Huneke's question regarding the finiteness of associated primes of local cohomology modules. For each of these questions, the Frobenius map proves useful in the case of positive characteristic. For polynomial rings such as  $\mathbb{Z}[x_1, \dots, x_d]$  or  $\mathbb{Q}[x_1, \dots, x_d]$ , the endomorphisms  $\varphi_k$  with  $\varphi_k(x_i) = x_i^k$  have some limited applications. This is based on work in progress is Uli Walther.